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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,816	02/06/2004	Hari Om	16820P277	8266
8791	7590	11/30/2005	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030			CHO, JAMES HYONCHOL	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/773,816

Applicant(s)

OM ET AL.

Examiner

James Cho

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-17,20-24,26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-6,12-16 and 20-22 is/are allowed.
- 6) ☒ Claim(s) 1,7-11,17,23,24 and 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

The drawings were received on 9-2-2005. These drawings are approved.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 7-11, 17, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Jang et al. (US Pat No. 6,762,620).

Regarding claims 1 and 17, Figs. 4 and 5 of Jang et al. teaches an apparatus and a method to control an impedance of an output driver comprising: a first pull-up structure (pull up transistors PM1 - PMn and RP1 - RPn in 110 of Fig. 5); a pull-down structure (pull down transistors NM1 - NMn and RN1 - RNn in 110 of Fig. 5); and a comparator (140 and 142) coupled to the first pull-up structure and the pull-down structure, to calibrate the first pull-up structure and the pull-down structure against a reference impedance (Rext in Fig. 5), and a second pull-up structure (120 in Fig. 5) coupled to the comparator where the comparator is operable to calibrate the second

pull-up structure directly against the reference impedance (pull up structure in 110 and 120 are coupled to CONPi and calibrated directly against Rext; col. 6 lines 50-64).

Regarding claim 9-11, Figs. 4 and 5 of Jang et al. teaches the apparatus of claim 1 where the reference impedance resides with the comparator on an integrated circuit die, on a package substrate, or on a printed circuit board (location of the reference impedance in relation to the comparator is merely intended use of the termination matching circuit, col. 1, lines 42-49, It has been held that a recitation directed to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).).

Regarding claims 7 and 23, Figs. 4 and 5 of Jang et al. teaches an apparatus and a method to control an impedance of an output driver comprising: a first pull-up structure (pull up transistors PM1 - PMn and RP1 - RPn in 110 of Fig. 5); a pull-down structure (pull down transistors NM1 - NMn and RN1 - RNn in 110 of Fig. 5); and a comparator (140 and 142) coupled to the first pull-up structure and the pull-down structure, to calibrate the first pull-up structure and the pull-down structure against a reference impedance (Rext in Fig. 5), and a second pull-up structure (120 in Fig. 5) coupled to the comparator where the first and second pull-up structures are shorted together (pull up structure in 110 and 120 are commonly coupled, i.e. shorted to CONPi ).

Regarding claim 8, Figs. 4 and 5 of Jang et al. teaches the apparatus of claim 7 where the first and second pull-up structures are substantially identical (both pull up transistors in 110 and pull up transistors of 120 are identical in a way being PMOS transistors and the same number of PMOS).

Claim 24 is rejected under 35 U.S.C. 102(a) as being anticipated by the Admitted Prior Art (ADP) in the instant application as shown in Fig. 1.

Regarding claim 24, Fig. 1 of ADP teaches an apparatus comprising means (155) for calibrating a first pull-up structure (130) and a pull-down structure (140) against a reference impedance (190; the impedances of 130 and 140 are the same as 120 which is the same as 190, i.e. 130 and 140 are calibrated against 190 via 120); and means (150) for calibrating a second pull-up structure (120) directly against the reference impedance (120 is matched with 190; paragraph [0005] in the specification of the instant application ); and means (210, 220, 212 and 222 in Fig. 2) for adjusting an impedance of each of a plurality of output drivers in response to the calibrated first pull-up structure and the calibrated pull-down structure ( paragraph [0007]).

#### ***Allowable Subject Matter***

Claims 4-6, 12-16 and 20-22 are are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: one of ordinary skill in the art would not have been motivated to modify the teaching of Jang et al. to further includes, among other things, the specific of a first, a second, and third registers coupled to the first and the second pull-up structures and the pull-down structure respectively to store a plurality of input values to a plurality of output drivers (claim 4), and the specifics of the method electrically coupling the comparator to one of a first, a second and a third registers (claim 20).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 7, 17, 23 and 24 have been considered but are moot in view of the new ground(s) of rejection.

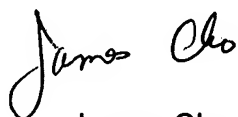
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Cho whose telephone number is 571-272-1802. The examiner can normally be reached on M-F 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford Barnie can be reached on 571-272-7492. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2819

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "James Cho". The signature is fluid and cursive, with the first name "James" and last name "Cho" clearly distinguishable.

James Cho  
Primary Examiner  
Art Unit 2819

11-25-2005